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(71)Applicant : ANIJIJINGU SPORTS:KK

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(72)Inventor : TERAMOTO SEIICHIRO

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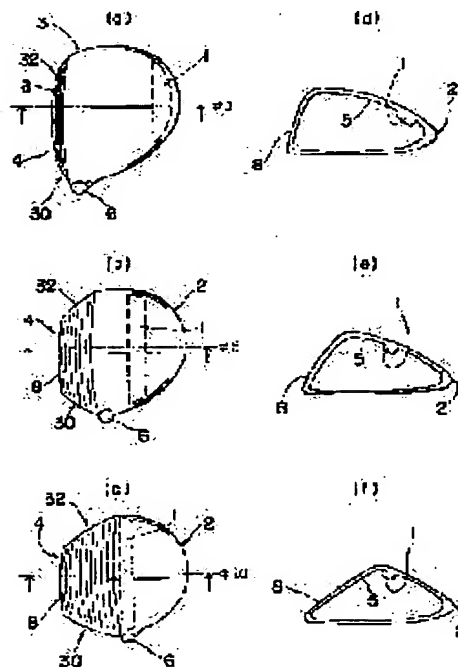
(54) GOLF CLUB AND GOLF CLUB SET

(57)Abstract:

PROBLEM TO BE SOLVED: To optimumly give a back spin and a side spin amounts and powers to a ball by controlling the weight and face round of a club head, torque vibration attenuation ratio and time of a shaft, and the inherent vibration of the torque according to an inertial moment for each numbered club in an independent vertical and lateral axes.

SOLUTION: According to an increase in an upward loft angle of a club face 8 surface, a neck advancing position from an axis of a shaft of a heel 30 edge of the face 8 of a club head 3 is decreased gradually. According to an increase in the upward loft angle thereof, also, the horizontal length of the head face surface is reduced.

According to an increase in the upward loft angle thereof, further, the slantwise length and height of the club face 8 are gradually increased. The vibration attenuation ratio of torque of a shaft as well as the time and torque inherent vibration are controlled.



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CLAIMS

[Claim(s)]

[Claim 1] A golf club characterized by having arranged the 1st wait for balance adjustment to a position of the upper surface started from a SOL of the arm head concerned in a golf club equipped with an arm head and a shaft connected with said arm head so that a center-of-gravity location of said arm head might change.

[Claim 2] A golf club characterized by having arranged the 2nd wait for balance adjustment at the rear face of a face of said arm head so that moment force may be generated at the time of impact with a ball and a loft angle may change with them.

[Claim 3] A golf club according to claim 1 characterized by having prolonged said 1st wait in good balance in a heel side direction from a two of the upper surface started from a SOL of said arm head.

[Claim 4] each of said 1st and 2nd waits -- a heel side from a two on said upper surface of head -- applying -- ** -- a golf club according to claim 1 or 2 characterized by having extended in good balance in the direction of a two from a heel neck on a rear face of a face.

[Claim 5] A golf club given in claim 1 characterized by said golf club being wood type crab.

[Claim 6] A golf club characterized by having arranged the 2nd wait for balance adjustment to a position of a rear face of a face of said arm head so that moment force may be generated at the supporting point and a loft angle which be the upward angle of a face side may change the impact location concerned with them in a golf club equipped with an arm head and a shaft connected with an arm head at the time of impact with a ball .

[Claim 7] A golf club according to claim 6 characterized by preparing the 1st wait for balance adjustment in a position of the upper surface of the arm head concerned further so that a center-of-gravity location of said arm head may change.

[Claim 8] A golf club according to claim 6 characterized by having prolonged said 2nd wait in good balance in the direction of a two from a heel neck of said arm head.

[Claim 9] a heel side from a two which each of said 1st and 2nd waits started from a SOL on said upper surface of head -- applying -- ** -- a golf club according to claim 7 characterized by having extended in good balance in the direction of a two from a heel neck on a rear face of a crab face.

[Claim 10] In a golf club set which consists of two or more golf clubs with which loft angles differ So that a loft angle each crab of whose moment force generates the impact location concerned at the supporting point at the time of impact with a ball, and is the upward angle of a face side by it may change A golf club set characterized by equipping a position of a rear face of a face with the 2nd wait for balance adjustment, and smaller crab being arranged [a loft angle] for said 2nd wait at the face bottom, and being arranged at the face bottom as a loft angle becomes large.

[Claim 11] For crab where each crab equips a position of the upper surface of the arm head concerned with the 1st wait for balance adjustment so that a center-of-gravity location of an arm head may change, and a loft angle is smaller, said 1st wait is a golf club set with which it is back arranged and is characterized by being arranged at a face side as a loft angle becomes large.

[Claim 12] A golf club set according to claim 10 characterized by having prolonged said 2nd wait in good balance in the direction of a two from a heel neck of said arm head.

[Claim 13] each of said 1st and 2nd waits -- a face side from the back on said upper surface of head -- applying -- ** -- a golf club set according to claim 10 or 11 characterized by weight moving at order to which the yarn count becomes large in balance good in the direction of the lower part from the face upper part.

[Claim 14] Said golf club set is a golf club set according to claim 10 characterized by being an iron set or a wood set.

[Claim 15] Said golf club set is a golf club set according to claim 11 characterized by being a wood set.

[Claim 16] For crab where each crab equips a position of the upper surface of the arm head concerned with the 1st wait for balance adjustment in a golf club set which consists of two or more golf clubs with which loft angles differ so that power area and an incident angle of an arm head may change, and a loft angle is smaller, said 1st wait is a golf club set with which it is arrange in head back and characterize by be arrange at a face side as a loft angle becomes large.

[Claim 17] So that each crab may generate the impact location concerned at the supporting point, and may generate moment force on a shaft in every direction at the time of impact with a ball and the Bucks focus side spin may change with them A golf club set characterized by equipping a position of a rear face of a face with the 2nd wait for balance adjustment, and smaller crab being arranged [a loft angle] for said 2nd wait at the face bottom, and being arranged at the face bottom as a loft angle becomes large.

[Claim 18] In a golf club set which consists of two or more golf clubs with which loft angles differ While each crab is equipped with the 1st wait for balance adjustment arranged at a position of the upper surface of said arm head so that a center-of-gravity location and power area of an arm head may change So that said arm head may generate [said each crab] moment force for the impact location concerned at the supporting point at the time of impact with a ball and a loft angle may change with them A golf club set characterized by having the 2nd wait for balance adjustment arranged at a position of a rear face of said face.

[Claim 19] A golf club set according to claim 18 characterized by arranging [a loft angle] smaller crab for said 1st wait in head back, and being arranged at a face side as a loft angle becomes large.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to a golf club and a golf club set. Especially, it is related with the golf club and golf club set which optimized the power which gets across to the backspin side spin of a ball, and a ball for every crab by round adjustment of a predetermined wait and the face upper part. Moreover, this invention relates to the golf club set which optimized the natural frequency of the attenuation factor of the torque angle of a shaft, the damping time, and a torque angle for every loft angle of a club head.

[0002]

[Description of the Prior Art] When enjoying golf, as an important thing, a ball may be flown to flying in the distance and accuracy (distance and directivity). It can be said that a golfer's level is high, so that the frequency which can hit a ball correctly is high. However, many golfers cannot necessarily always hit a ball to accuracy.

[0003] The golf club has accomplished evolution from various directions for a long time. For example, in many cases, layout which enlarges a sweet spot is made by the method of adopting new materials as a club head. Many golf clubs used as the current mainstream are extremely made into a low center of gravity, or only make center-of-gravity depth deep. Moreover, in many cases, adopting new materials and aiming at the FREX adjustment and improvement in repulsive force is also made also about the shaft.

[0004]

[Problem(s) to be Solved by the Invention] There is a separate role in each crab respectively. That is, as for long crab (small crab of a loft), such as a driver, flying in the distance is important, and its accuracy (a direction and distance) is [short crab (big crab of a loft), such as a pitching wedge] more important than flight distance.

[0005] The 1st technical problem which this invention tends to solve is giving the amount of optimal backspin side spin, and the optimal power to a ball by performing round adjustment of the wait of a club head, and the face upper part based on the moment-of-inertia theory for every yarn count in an original shaft in every direction. Moreover, the 2nd technical problem is offering the golf club set which optimized the damping time of the torque angle of a shaft, and the natural frequency of an attenuation factor and a torque angle for every loft angle of a club head based on an original torque theory.

[0006]

[Means for Solving the Problem] Even if it made this invention into wood and used it as an iron, adjustment of the optimal spin rotation in a case of carrying out a shot suitable for the yarn count of crab, adjustment of the directivity of a face, and a means for adjusting a carry toward short crab from a run of long crab for every yarn count attained it.

[0007] That is, this invention systematizes a property demanded for every crab in a golf club set according to the yarn count. However, it may divide into long, middle, short-circuit, and three types in this case, or you may make it a short chisel same value. It is the point that orientation of change is not reverse in short as a whole.

[0008] Specifically, the 1st of the means carried out sequential reduction of the neck advance

location from a medial axis of a shaft of a heel edge of a face of a club head as a upward loft angle of a crab face side became large.

[0009] The 2nd [the] made the horizontal length of a head face side small as a upward loft angle of a crab face side became large.

[0010] Moreover, it considered as a golf club set which enlarged slanting lay length and height of a crab face one by one as a upward loft angle of a crab face side became large.

[0011] Technical thought of this invention is applicable to both wood and an iron. Moreover, it is not limited to a material of a shaft, either but steel, graphite, etc. can be applied to any shaft of a type.

[0012] In this invention, power area and spin to which center-of-gravity depth spreads inside from a crab face, and an incident angle are adjusted. If power area becomes large by adjustment of an incident angle and a wait (weight), power which gets across to a ball will increase and flight distance will be extended. In addition, power area is explained to details in an example.

[0013] Although current is thinking only moment of inertia in a perpendicular axis of ordinate as important to the ground, it is most important for especially ordinary amateur to consider an incident angle and moment of inertia in a horizontal axis parallel to the ground toward a heel from a two.

[0014] What is necessary is just to adjust static balance, for example so that it may become heavier as it becomes short on the basis of long crab since 200-210g are desirable in the case of long of No. 1 since weight of the arm head itself changes with man and woman, length, the hardness of a shaft, etc. a lot in the case of crab. This function does not become only a wood set but a function can be enough demonstrated by same specification also in an iron set.

[0015] Although various methods of this wait load have a method, a method of using for a part, only making that portion thick, inserting a material of a tungsten with heavy specific gravity or brass, carrying out laser radiation, or emphasizing etc. may be used for them.

[0016] Thickness of a face side where a ball hits was enlarged one by one, and a round of the face upper part was adjusted for every yarn count as a loft angle which is a upward angle of a crab face side as another means of this invention became large.

[0017] The damping time of a torque angle of a twist of a shaft was shortened one by one, and an attenuation factor was adjusted for every yarn count as a loft angle which is a upward angle of a crab face side as still more nearly another means became large. Moreover, we decided to arrange a resonant frequency of a torque angle of a crab shaft with order which becomes large for every yarn count.

[0018]

[Embodiment of the Invention] The wait (weight) used for this invention can also be later attached in the crab which could fabricate in one as a design of a golf club at the time of manufacture, or was completed. Fundamentally, the wait balance of this invention adopts the flow design in consideration of the whole golf club set. The flow in this case may be the same numeric value in part. It considers as the point that numerical change orientation does not become reverse as a whole. That is, the location and amount (weight) of a wait are adjusted according to the yarn count (loft angle).

[0019] Moreover, although it is the weight of a wait, homogeneity is sufficient as the weight allocation applied to a heel from a two more than the Nakagami class person. You may emphasize that long crab is heavy in a two portion, and a part makes a heel portion light depending on a first middle-class person's level. Moreover, although an effect is in side spin when how short crab is heavy in a heel portion, it is made to make a two portion light, and middle makes the middle heavy is taken, also in the reverse, an upper person has an effect.

[0020]

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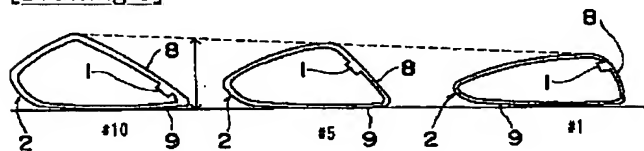
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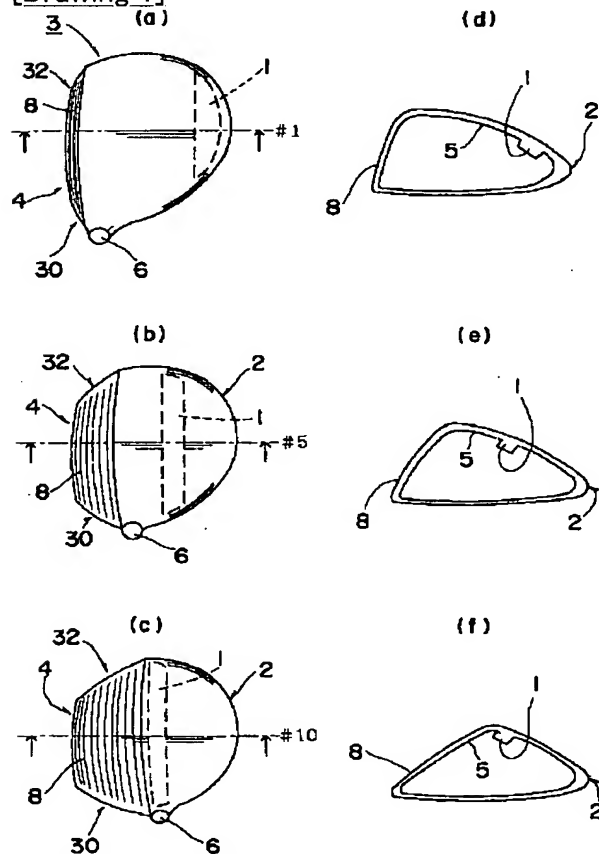
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DRAWINGS

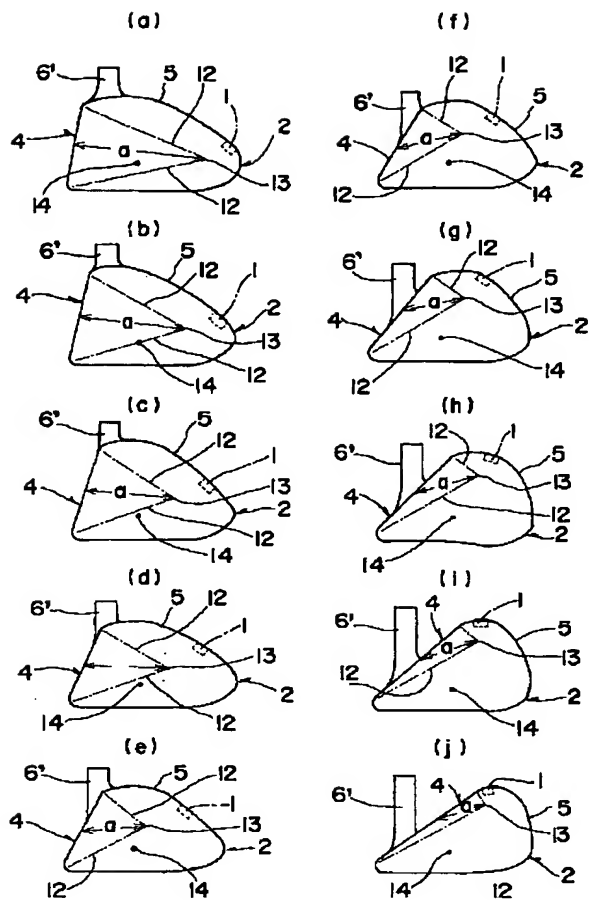
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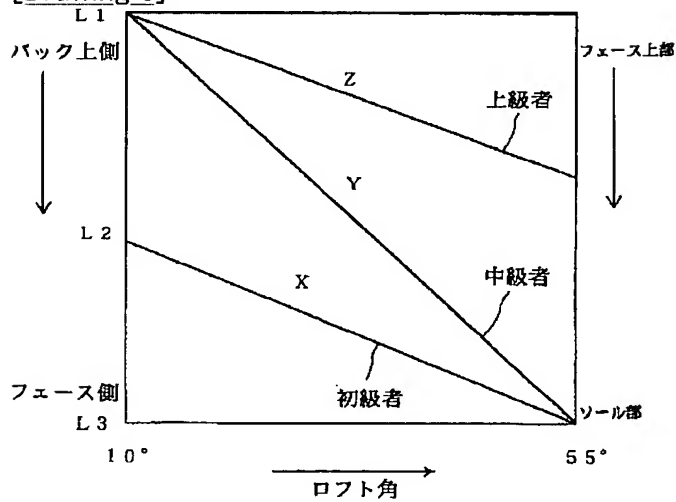
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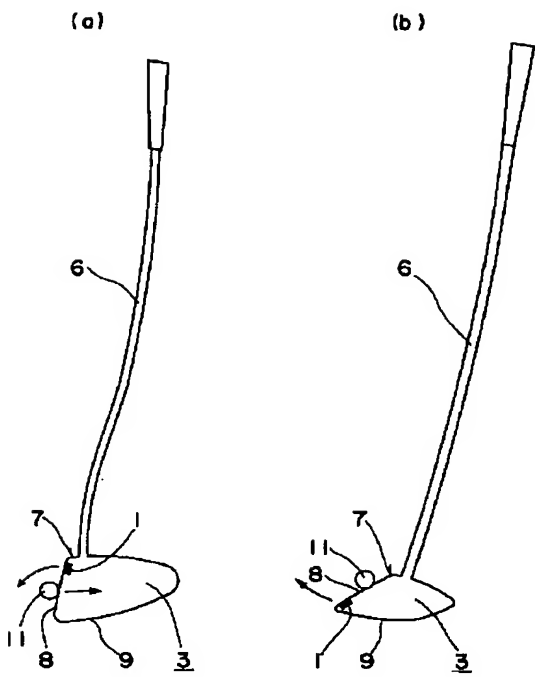
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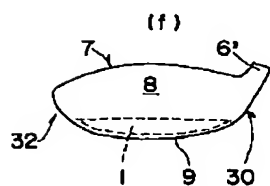
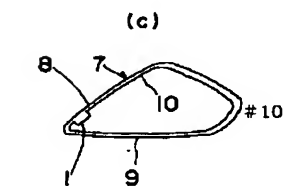
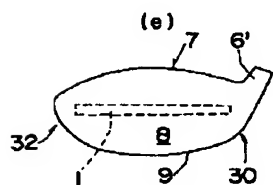
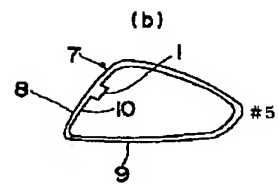
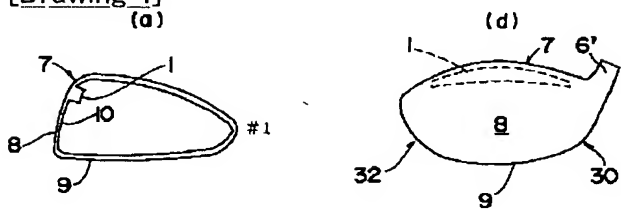
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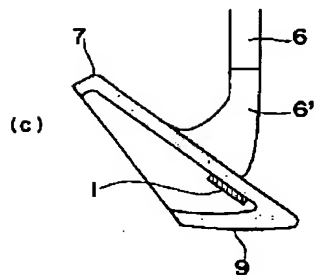
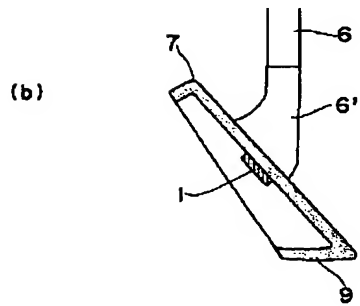
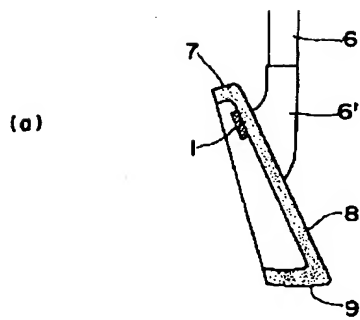
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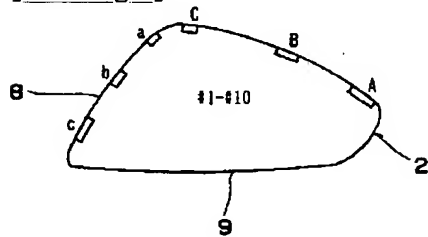
[Drawing 4]
(a)



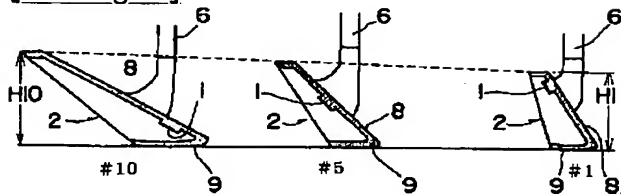
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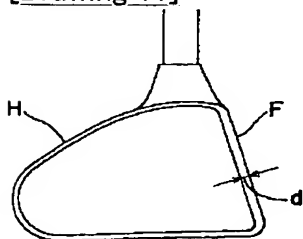
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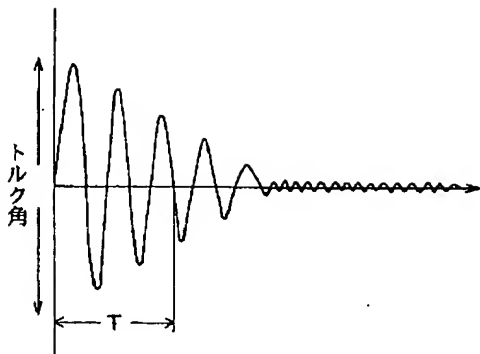
[Drawing 10]



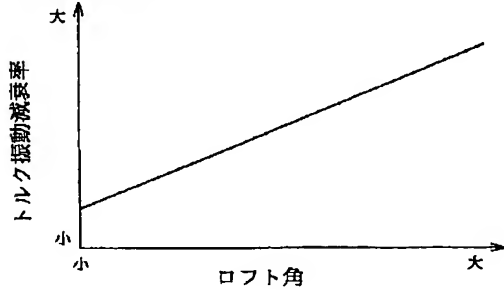
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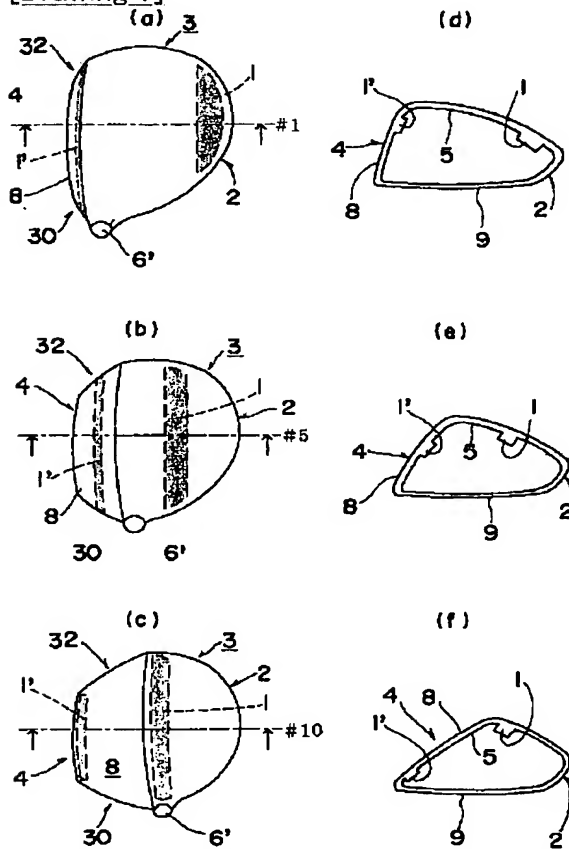
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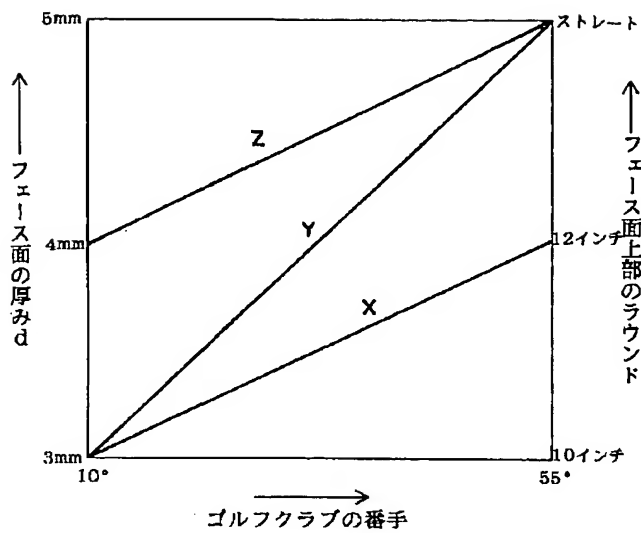
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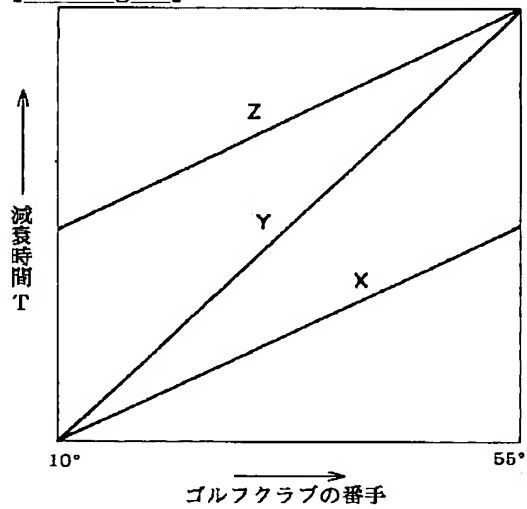
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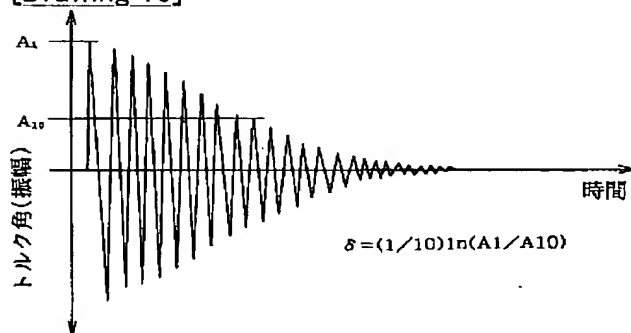
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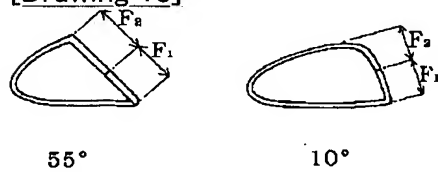
[Drawing 14]



[Drawing 16]



[Drawing 18]



[Drawing 17]

ロフト角 (°)	トルク振動減衰率
10	0.014
15	0.018
20	0.022
25	0.026
30	0.030
35	0.034
40	0.038
45	0.042
50	0.046
55	0.046

[Drawing 19]

ロフト角(°)	トルク角固有振動数(秒)
10	8.50
15	9.00
20	9.50
25	10.00
30	10.50
35	11.00
40	11.50
45	12.00
50	12.50
55	12.50

[Translation done.]